

Claims

1. Method for transmitting information (inf) at least partially over
5 a packet-oriented communication network (EN),
in which the information (cell) that is to be transmitted is
inserted as useful information (data) into a useful data field (nf)
of at least one data packet (dp) of the packet-oriented
communication network (EN),
10 in which target information is inserted into the at least one data
packet in each case,
characterized in that,
- prior to the insertion into the useful data field (nf) of the at
least one data packet (dp), additional routing information (ri) for
15 the onward transmission is assigned in each case to the information
(cell) which is to be transmitted,
- the at least one data packet (dp) and the information (cell)
inserted into it together with the routing information (ri) assigned
in each case are transmitted to at least one target (AE1 to z)
20 represented by the target information (da) of the data packet (dp)
in the packet-oriented communication network (EN), and
- the information (cell) transmitted to the target (AE1 to z) is
forwarded in accordance with the routing information (ri) assigned
in each case.
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2. Method for transmitting information (inf) at least partially via
a time-slot oriented communication network,
in which the information (cell) that is to be transmitted is
inserted as useful information (data) into at least one time slot of
30 the time-slot oriented communication network,
characterized in that
- prior to the insertion into the at least one time slot, additional
routing information (ri) for the onward transmission is assigned in
each case to the information (cell) which is to be transmitted,
35 - the at least one time slot and the information (cell) inserted
into it together with the routing information (ri) assigned in each

case are transmitted to at least one target (AE1 to z) in the time slot oriented communication network, and

- the information (cell) transmitted to the target (AE1 to z) is forwarded in accordance with the routing information (ri) assigned in each case.

3. Method according to Claim 1 or 2, characterized in that the information (cell) inserted into the useful data field (nf) of the at least one data packet (dp) or into the at least one time slot is assigned to at least one virtual connection (vc1, vc2) made at least partially over the packet-oriented or time-slot oriented communication network (EN).

4. Method according to one of the preceding Claims, characterized in that the information (cell) transmitted to the target (AE1 to z) in the packet-oriented or time-slot oriented communication network (EN) is replicated according to the routing information (ri) and the replicated information is then forwarded.

5. Method according to one of the preceding claims, characterized in that

- the information (cell) to be transmitted is a component of at least one data cell of a cell-oriented communication network (ACCESS),

- prior to the insertion into the useful data field (nf) of the at least one data packet (dp) or prior to the insertion into the time slot, an additional information field (zf) where the routing information (ri) can be inserted is added to the at least one data cell (cell),

- the at least one data cell (cell) transmitted to the at least one target (AE1 to z) in the packet-oriented or time-slot oriented communication network (EN) is forwarded to/via the cell-oriented communication network (ACCESS) according to the routing information (ri) assigned in each case.

6. Method according to Claim 5, **characterized in that** before the at least one data cell (cell) is forwarded to/via the cell-oriented communication network (ACCESS) the additional information field is removed.

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7. Method according to Claim 5 or 6, **characterized in that** an item of information (n) representing the number of data cells (cell) inserted into the useful data field (nf) of the at least one data packet (dp) or into the at least one time slot is inserted into the data packet (dp) or into the time slot.

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8. Method according to one of the Claims 5 to 7, **characterized in that** the cell-oriented communication network (ACCESS) is designed according to the asynchronous transfer mode.

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9. Method according to Claim 1 or according to one of the Claims 3 to 8, **characterized in that** the packet-oriented communication network (EN) is designed according to the standard IEEE 802.3.

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10. Method according to Claim 8 or 9, **characterized in that** the routing information (ri) includes further information for identifying an ATM service class.

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11. Communication system for transmitting information (cell) at least partially over a packet-oriented communication network (EN), said packet-oriented communication network (EN) containing insertion means (CONT)

- for inserting the information (cell) as useful information (data) into a useful data field (nf) of at least one data packet (dp) of the packet-oriented communication network (EN),

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- for inserting target information (DA) into the at least one data packet (dp),

characterized in that

- further assignment means which are assigned to the insertion means (CONT) are provided for the purpose of assigning additional routing information (ri) to the information (cell) that is to be inserted

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into the useful data field (nf) of the at least one data packet (dp),

- the packet-oriented communication network (EN) is designed in such a way that the at least one data packet (dp) and the information (inf) inserted into it together with the routing information (ri) assigned in each case are transmitted to at least one target (AE1 to z) represented by the target information (DA) of the data packet (dp) in the packet-oriented communication network (EN), and
- at each such target (AE1 to z) further switching means (CONT) are provided, by which the information (cell) transmitted to the target (AE1 to z) is forwarded in accordance with the routing information (ri) assigned in each case.

12. Communication system for transmitting information (cell) at least partially over a time-slot oriented communication network, said time-slot oriented communication network containing insertion means (CONT) for inserting the information (cell) as useful information (data) into at least one time slot of the time-slot oriented communication network (EN),

characterized in that

- further assignment means are provided which are assigned to the insertion means (CONT) and by which, prior to the insertion into the at least one time slot, additional routing information (ri) for the onward transmission is assigned in each case to the information (cell) which is to be transmitted,
- the time-slot oriented communication network is designed in such a way that the at least one time slot and the information (inf) inserted into it together with the routing information (ri) assigned in each case are transmitted to at least one target (AE1 to z) in the time-slot oriented communication network,
- at each such target (AE1 to z) further switching means (CONT) are provided, by which the information (cell) transmitted to the target (AE1 to z) is forwarded in accordance with the routing information (ri) assigned in each case.

13. Communication system according to Claim 11 or 12, **characterized in that**

- the information (cell) to be transmitted is a component of at least one data cell of a cell-oriented communication network

5 (ACCESS),

- the insertion means (CONT) and the assignment means are designed in such a way that prior to the insertion into the useful data field (nf) of the data packet (dp) or prior to the insertion into the at least one time slot, an additional information field (zf) where the routing information (ri) can be inserted is added to the at least one data cell (cell),

10 - the switching means (CONT) are designed in such a way that the at least one data cell (cell) transmitted to the target (AE1 to z) in the packet-oriented or time-slot oriented communication network (EN) is forwarded to/via the cell-oriented communication network (ACCESS) according to the routing information (ri) assigned in each case.

14. Communication system according to one of the Claims 11 to 13, **characterized in that** before the at least one data cell (cell) is forwarded to/via the cell-oriented communication network (ACCESS) the additional information field (zf) is removed.

15. Communication system according to Claim 13 or 14, **characterized in that** the switching means (CONT) are designed in such a way that an item of information (n) representing the number of data cells (cell) inserted into the useful data field (nf) of the at least one data packet (dp) or into the at least one time slot is inserted into the data packet (dp) or into the time slot.

16. Communication system according to one of the Claims 13 to 15, **characterized in that** the cell-oriented communication network (ACCESS) is designed according to the asynchronous transfer mode.

17. Communication system according to Claim 11 or according to one of the Claims 13 to 15, **characterized in that** the packet-oriented

communication network (EN) is designed according to the standard IEEE 802.3.

18. Communication device (DSLAM) for transmitting information (cell)
5 at least partially over a packet-oriented communication network (EN)
located in the communication device (DSLAM), having insertion means
(CONT)
- for inserting the information (cell) that is to be transmitted as
useful information (data) into a useful data field (nf) of at least
10 one data packet (dp) of the packet-oriented communication network
(EN),
- for inserting target information (DA) into the at least one data
packet (dp),
characterized in that
15 - further assignment means which are assigned to the insertion means
(CONT) are provided for the purpose of assigning in each case
additional routing information (ri) to the information (cell) that
is to be inserted into the useful data field (nf) of the at least
one data packet (dp),
20 - the communication network (EN) is designed in such a way that
- the at least one data packet (dp) and the information (inf)
inserted into it together with the routing information (ri)
assigned in each case are transmitted within the communication
device (DSLAM) to at least one target (AE1 to z) represented by
25 the target information (DA) of the at least one data packet (dp),
and
- in the communication device (DSLAM) further switching means
(CONT) assigned to each such target (AE1 to 3) are provided, by
which the information (cell) transmitted to the target (AE1 to z)
30 is forwarded in accordance with the routing information (ri)
assigned in each case.

19. Communication device (DSLAM) for transmitting information (cell)
at least partially over a time-slot oriented communication network
35 located in the communication device (DSLAM), having insertion means
(CONT) for inserting the information (cell) that is to be

transmitted as useful information (data) into at least one time slot of the time-slot oriented communication network,

characterized in that

- further assignment means which are assigned to the insertion means (CONT) are provided for the purpose of assigning in each case additional routing information (ri) to the information (cell) that is to be inserted into the at least one time slot,
- the time-slot oriented communication network is designed in such a way that the at least one time slot and the information (inf) inserted into it together with the routing information (ri) assigned in each case are transmitted to at least one target in the timeslot oriented communication network, and
- in the communication device (DSLAM) further switching means (CONT) assigned to each such target (AE1 to z) are provided, by which the information (cell) transmitted to the target (AE1 to z) is forwarded in accordance with the routing information (ri) assigned in each case.

20. Communication device according to Claim 18 or 19, **characterized in that**

- the information (cell) to be transmitted is a component of at least one data cell (cell) of a cell-oriented communication network (ACCESS),
- the insertion means (CONT) and the assignment means are designed in such a way that prior to the insertion into the useful data field (nf) of the at least one data packet (dp) or prior to the insertion into the at least one time slot, an additional information field (zf) where the routing information (ri) can be inserted is added to the at least one data cell (cell),
- the switching means (CONT) are designed in such a way that the at least one data cell (cell) transmitted to the at least one target (AE1 to z) in the packet-oriented or time-slot oriented communication network (EN) is forwarded to/via the cell-oriented communication network (ACCESS) according to the routing information (ri) assigned in each case.

21. Communication device according to Claim 20, **characterized in that** the switching means (CONT) are designed in such a way that before the at least one data cell (cell) is forwarded to/via the cell-oriented communication network (ACCESS) the additional
5 information field (zf) is removed in each case.

22. Communication device according to one of the Claims 18 to 21, **characterized in that** at least one connection unit (AE1 to z) or central unit (PACK) located in the communication device (DSLAM) and
10 including the respective switching means (CONT) is represented by the target information (DA) of the at least one data packet (dp) or by the at least one target in the time-slot oriented communication network.

15 23. Method according to one of the Claims 18 to 22, characterized in that the additional routing information (ri) represents
- at least one subscriber connection line (TLN1 to n, TLN1 to k) connected to the respective connection unit (AE1 to z), or
- at least one connection port assigned to the respective connection
20 unit (AE1 to z).

24. Communication device according to one of the Claims 11 to 13, **characterized in that** the cell-oriented communication network (ACCESS) is designed according to the asynchronous transfer mode.
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25. Communication device according to Claim 18 or according to one of the Claims 20 to 24, **characterized in that** the packet-oriented communication network (EN) is designed according to the standard IEEE 802.3.
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26. Communication device according to Claim 24 or 25, **characterized in that** the routing information (ri) includes further information for identifying an ATM service class, and a corresponding queue located on the appropriate connection unit (AE1 to z) is assigned to
35 each ATM service class concerned.